

electrolyte is discussed in the specification at page 4, lines 19-27. Clearly, no new matter has been added.

Applicants have amended the specification to clarify that dibenzylidene sorbitol derivatives are excluded from the present invention because they require a stabilizer. This is substantiated by the disclosure at page 4, lines 6-17, and the Reference Example (former Example 19). Clearly, no new matter has been added.

The application is objected to under 35 U.S.C. § 132 for allegedly containing new matter introduced via the Second Preliminary Amendment. Specifically, the Examiner alleged that the specification does not specifically support the new language in claim 1 regarding the gelling agent that substantially does not free an aldehyde at room temperature and in the presence of water.

While Applicants disagree with the Examiner, solely to expedite prosecution claim 1 has been amended to delete the objectionable language and claim 8 has been cancelled. Accordingly, the new matter rejection is moot and should be withdrawn.

Claims 1, 4-6, 8 and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,470,677 (Williams) or 4,996,334 (Kaitoh). These rejections are respectfully traversed.

The anticipation rejections over William and Kaitoh are based on the Examiner's allegation that they teach sorbitol gelling agents. Applicants respectfully submit that even if assumed, arguendo, that these references contain the alleged teachings,

they cannot affect the patentability of the presently claimed invention since sorbitol gelling agents are outside of the scope of the present claims.

Specifically, none of the compounds listed in claim 1, as amended herein, are sorbitols. Claim 10 specifies that the gel electrolyte is chemically stable. As discussed in the specification at page 4, lines 6-17, sorbitol derivatives are relatively unstable and require a stabilizer. Therefore, clearly, sorbitol derivatives have been excluded from the claims. Accordingly, Williams and Kaitoh cannot affect the patentability of the present invention.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being allegedly obvious from Williams in view of GB 2,212,504 (GB '504). This rejection is respectfully traversed.

The Examiner alleged that GB '504 discloses an amide-substituted cyclohexane ring gelling agent that anticipates the compounds in the subject application. Applicants respectfully disagree.

The compound in claim 1 of GB '504 is clearly different from the presently claimed compounds. For example, the nitrogen in the compounds listed claim 1, as presently amended, which nitrogen is bonded to a carbonyl, is also bonded to hydrogen. The nitrogen in compound in GB '504, however, must be bonded only to carbon. Thus, even if the compound in claim 1 of GB '504 were considered a monomer and not a polymer, it would still not correspond to the compounds in claim 1. Accordingly, GB '504, whether considered alone or in combination with Williams, cannot affect the patentability of the presently claimed invention.

Claims 2 and 7 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious from Williams in view of WO 98/11619 (Green). Claims 2 and 6 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Makoto Ue et al., "A New Gelling Agent and Its Application as a Solid Electrolyte for Lithium Batteries," 38(9) Electrochimica Acta 1301-1302 (1993) (Ue) in view of Green.

Applicants have amended claim 1 to include, in relevant part, the features of claim 5. Therefore, the above rejections, which do not apply to claim 5, are moot and should be withdrawn.

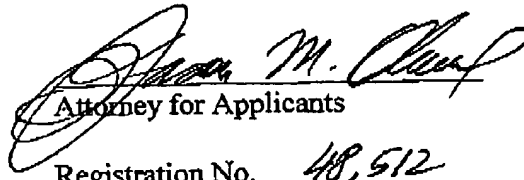
In conclusion, Applicants would like to again point out to the Examiner that a chemically stable gel electrolyte of the present invention, in which a combination of a molten salt and a gelling agent forms a fibrous associated body via non-covalent bonding, is clearly novel and non-obvious. As discussed by Applicants in detail in the Second Preliminary Amendment, which discussion is incorporated by reference herein, the role of the solvent (polarity, polarizability) in gelation is very important. It is not possible to predict that such a gelling agent can gel in a molten salt without any or with little organic solvent.

Applicants respectfully submit that the cited references, whether considered separately or in any combination, do not disclose or suggest the combination of elements presently claimed. Accordingly, all outstanding rejections should be withdrawn.

Wherefore, it is respectfully requested that the claims be allowed and that the present case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

  
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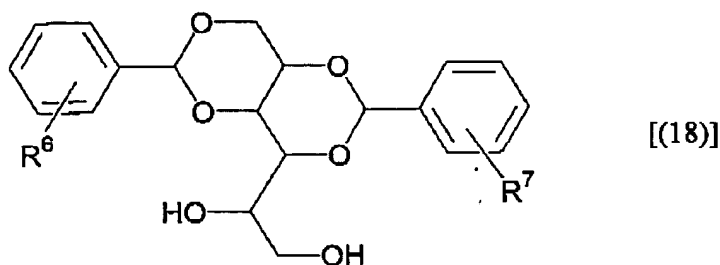
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**APPENDIX**

Application No. 09/417,832  
Attorney Docket No. 03500.013929

**IN THE SPECIFICATION:**

The last two paragraphs on page 15 have been amended as follows:

**Reference Compound [No. (18)]**

The dibenzylidene sorbitol derivative represented by the reference formula [(18) can be used], wherein  $R^6$  and  $R^7$  are each an aliphatic hydrocarbon group having a carbon number of 1 to 29 or an aryl group, can be used but it requires a stabilizer to be chemically stable.

The paragraph at page 36, line 27 - page 37, line 8, has been amended as follows.

The same procedure as used in Example 1 was carried out except that the compound represented by the reference formula, [(18)] where both  $R^6$  and  $R^7$  are methyl groups (Sample R), was used as the gelling agent and potassium sorbate was added as the stabilizer. The mixture gelled without adding any organic solvent. When the gel was left standing for 6 months at room temperature, neither leakage of  $\text{ImBF}_4$  nor discoloration of

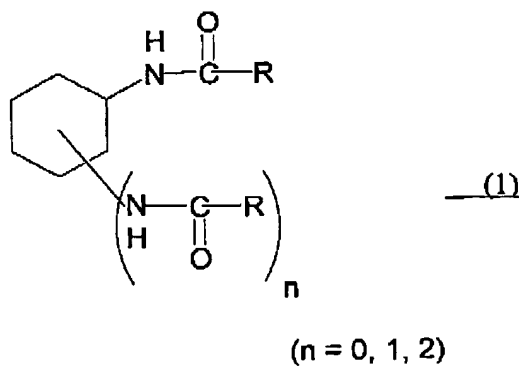
the gel was observed.

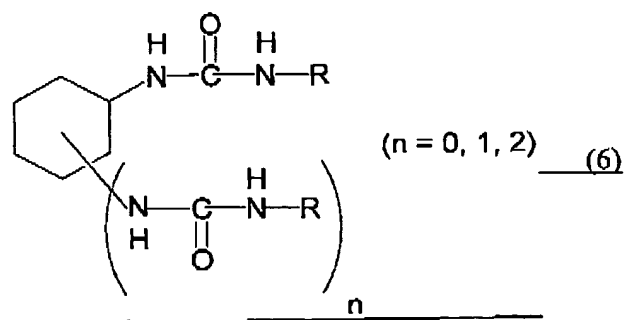
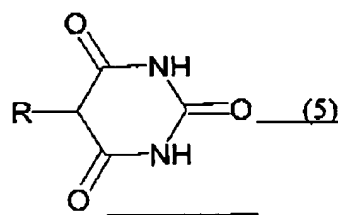
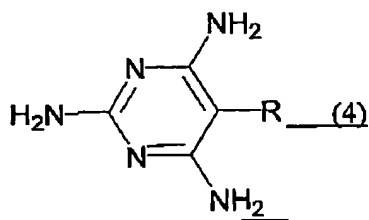
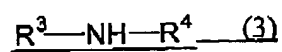
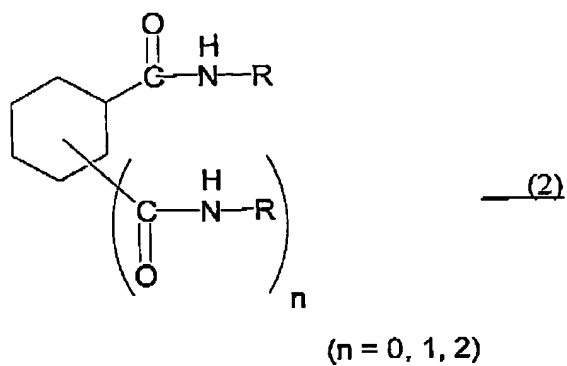
IN THE CLAIMS:

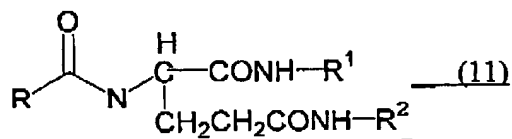
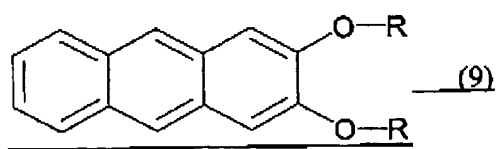
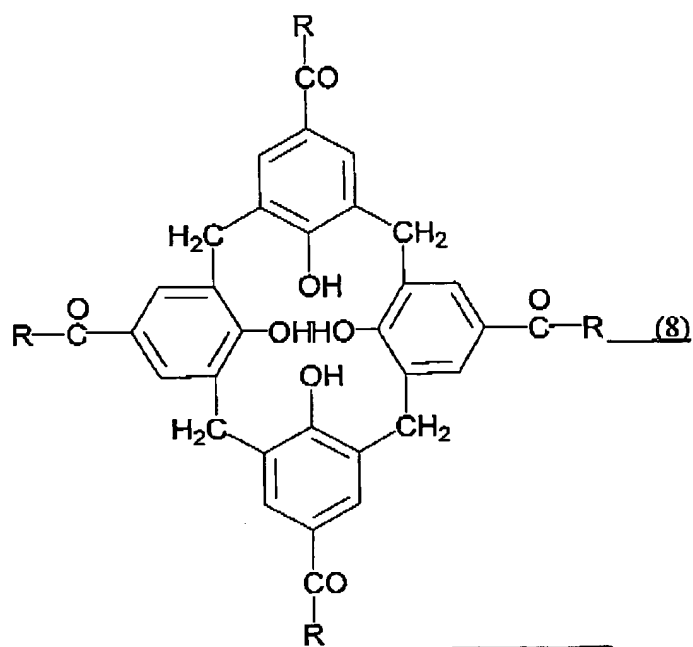
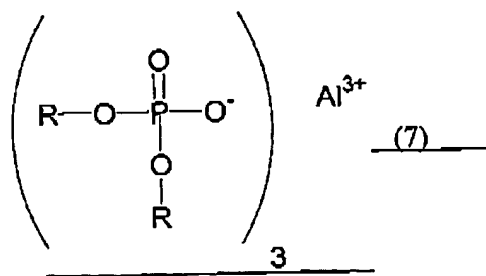
Claims 2, 4, 5 and 8 have been cancelled.

Claim 1, 6 and 7 has been amended as follows:

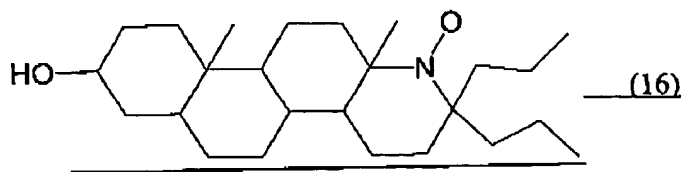
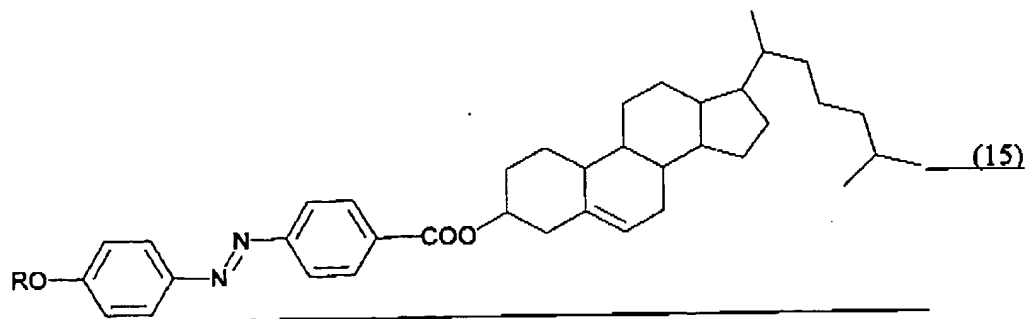
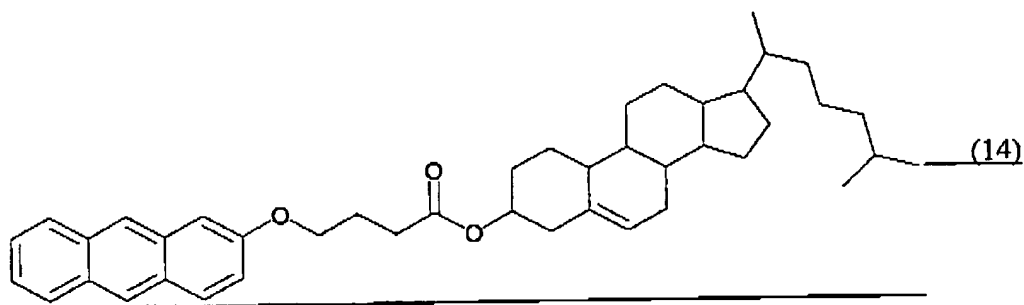
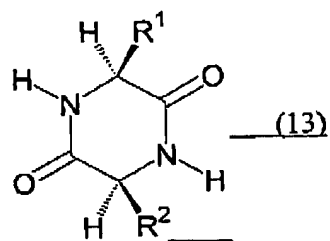
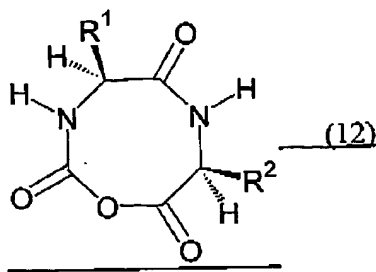
1. (Four Times Amended) A gel electrolyte comprising:  
a gelling agent forming a fibrous body; and  
an ionically conductive material, which is liquid at working temperature and  
which is held in the fibrous body by said gelling agent,  
wherein said ionically conductive material is a salt that is liquid at room  
temperature, the fibrous body is associates via intermolecular bonding, and the gelling  
agent is selected from the group consisting of the compounds represented by the following  
formulae (1) to (17) and (19) to (26);

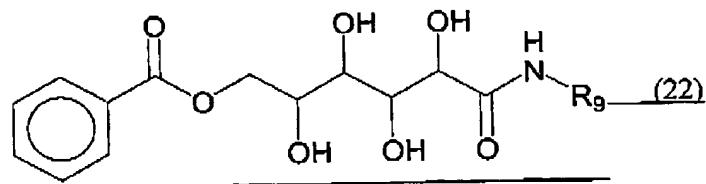
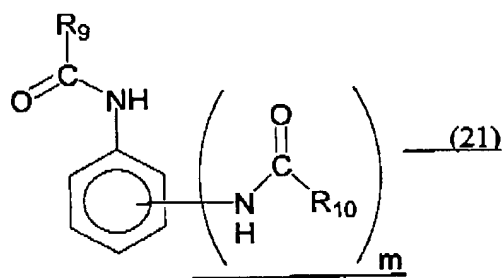
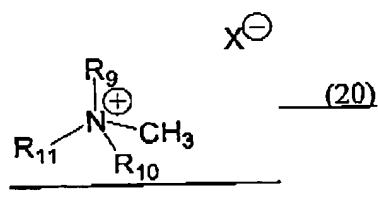
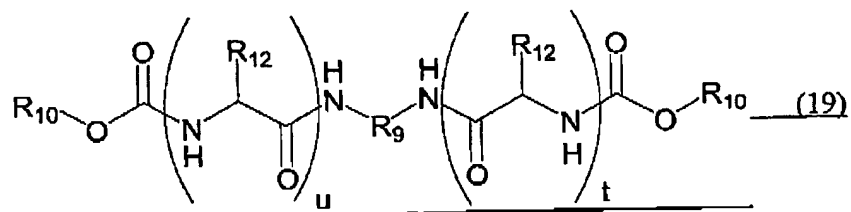
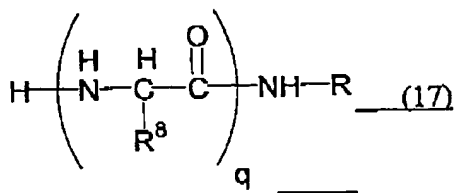


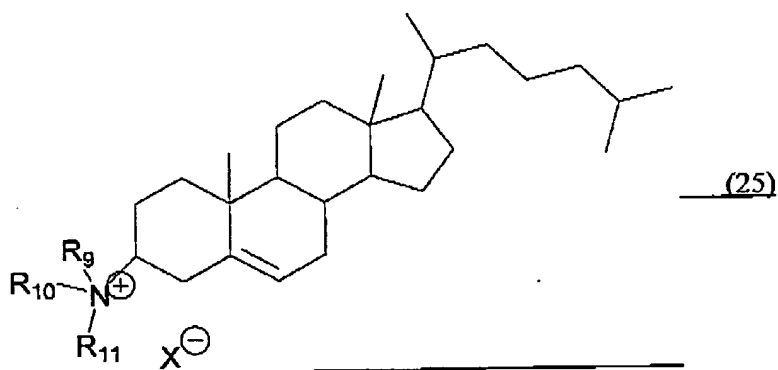
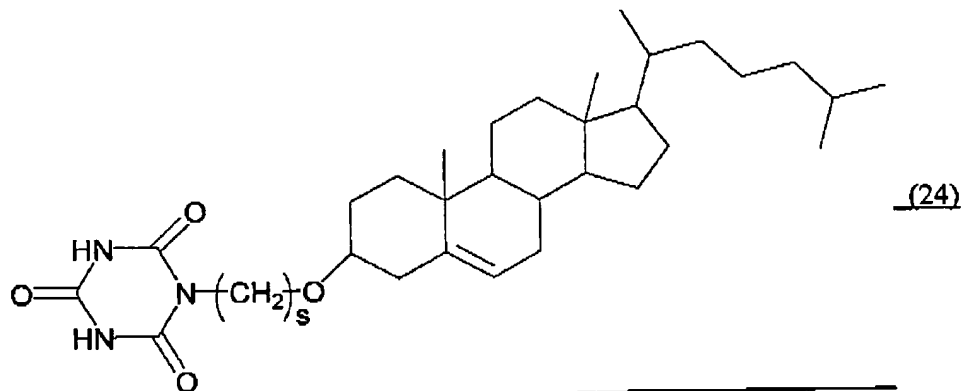
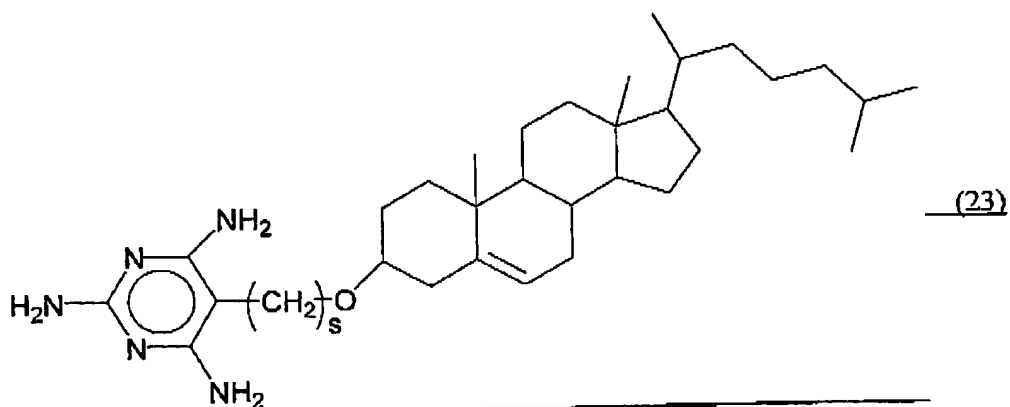




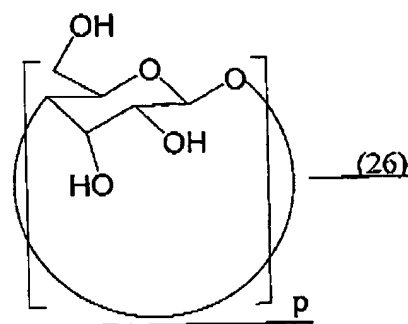








and



wherein,  $R$ ,  $R_1$  and  $R_2$  are each hydrogen, or a straight-chain or branched aliphatic hydrocarbon group having a carbon number of 1 to 29;  $R_3$  is an amino acid monomer or dimer with a protected amino group;  $R_4$  is an aliphatic hydrocarbon having a carbon number of 1 to 29 or an aryl group;  $R_5$  is a straight-chain aliphatic group having a carbon number of 1 to 29 and being substituted with one hydroxyl group;  $R_6$  is hydrogen, or an aliphatic hydrocarbon group having a carbon number of 1 to 5 or aryl group;  $n$  is 0, 1 or 2;  $q$  is an integer of 2 to 20;  $R_9$ ,  $R_{10}$  and  $R_{11}$  are each hydrogen, or a straight-chain or branched aliphatic hydrocarbon group having a carbon number of 1 to 29;  $R_{12}$  is a side chain of an amino acid, or an alkyl or aryl group;  $X$  is a halogen;  $p$  is an integer of 6 to 8;  $m$  is an integer of 0 to 5 and  $s$  is an integer of 0 to 29, and  $a$  and  $t$  are an integer of 1 to 500 [gelling agent substantially does not free an aldehyde at room temperature and in the presence of water,

wherein the fibrous body is associated via intermolecular bonding, and  
wherein said gelling agent is a non-polymeric gelling agent].

6. (Twice Amended) A cell comprising an anode, an electrolyte and a cathode, wherein said electrolyte is the gel electrolyte according to claim [of any one of

claims] 1 [to 4].

7. (Twice Amended) An electrochromic element comprising a pair of transparent electrodes between which an electrochromic layer which develops color on reduction and a transparent ionic conductor layer exist, wherein said ionic conductor layer contains the gel electrolyte according to claim [of any one of claims] 1 [to 4].

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